

REMARKS

Claims 1 to 22 are pending in the application. Claims 21 and 22 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing particularly to point out and distinctly to claim the subject matter that Applicant regards as the invention. Claims 1 to 5, 8 to 13, and 17 to 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. (U.S. Patent 5,931,995) in view of either Schwarz et al. (U.S. Patent 5,122,187) or Siddiqui (U.S. Patent 5,939,468), Watt (U.S. Patent 4,105,806), and Takazawa et al. (U.S. Patent 5,279,655). Claims 6 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. in view of either Schwarz et al. or Siddiqui, Watt, and Takazawa et al. and further in view of Tobias et al. (U.S. Patent 5,286,288). Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. in view of either Schwarz et al. or Siddiqui, Watt, and Takazawa et al. and further in view of Nishizaki et al. (U.S. Patent 6,022,910). Claims 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. in view of either Schwarz et al. or Siddiqui, Watt, and Takazawa et al. and further in view of Shacklette (U.S. Patent 5,378,403) and WO 93/22775.

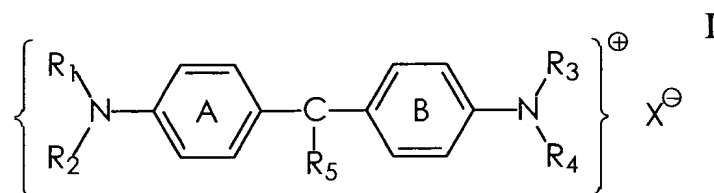
With respect to the rejection of claims 21 and 22 under §112, second paragraph, the Examiner has stated that claim 21, which contains "consisting essentially of" language, and claim 22, which contains "consisting of" language, given this closed language, the scope of the claims is confusing given the presence of "optional" components, and has requested clarification. Applicant points out that the "consisting essentially of" language in a claim limits the scope thereof to the

elements expressly recited and to only those additional unspecified elements that do not materially affect the basic and novel characteristics of the claimed combination. See, e.g., Ex parte Davis, 80 U.S.P.Q. 448 (PTO Bd. App 1950); In re Baird, 348 F.2d 974, 146 U.S.P.Q. 579 (CCPA 1965); In re Bandel, 348 F.2d 563, 146 U.S.P.Q. 389 (CCPA 1965); In re Janakirama-Rao, 317 F.2d 951, 137 U.S.P.Q. 893 (CCPA 1963); Atlas Powder Co. v. E.I. du Pont De Nemours and Co., 750 F.2d 1569, 224 U.S.P.Q. 409 (Fed. Cir. 1984); Ex parte Hoffman, 12 U.S.P.Q.2d 1061 (PTO Bd. App. 1989); In re Garnero, 412 F.2d 276, 162 U.S.P.Q. 221 (CCPA 1969). Applicant further points out that the use of the term "optionally" in a claim with respect to the presence of a material denotes that a given material may or may not be employed, and does not obfuscate the subject matter claimed as the invention. "Optionally" is akin to expressions such as "up to" and "0 to . . ." and would not normally render claims indefinite. Ex parte Cordova, 10 U.S.P.Q. 2d 1949 (PTO Bd. Pat. App. Int. 1989). As the Board of Appeals stated in Ex parte Cordova, "[t]he examiner contends that the use of the term 'optionally' is ambiguous, since it is not clear whether the unsaturated aliphatic carboxylic acid is, in fact, encompassed by the claims. The recitation 'optionally' denotes that the unsaturated aliphatic carboxylic acid may or may not be employed. It is not apparent, and the examiner has not explained, why the use of such alternative language fails to particularly point out and distinctly claim the subject matter appellants regard as their invention. It is our opinion that the use of the alternative expression 'optionally' in the rejected claims does not obfuscate the subject matter appellants regard as their invention. Ex parte Head, 214 U.S.P.Q. 551 (Bd.

App. 1981). The examiner's rejection under the second paragraph of 35 U.S.C. 112 is, therefore, reversed." Ibid. at 1950. See also Ex parte Wu, 10 U.S.P.Q. 2d 2031 (BPAI 1989), upholding the use of the word "optionally" in a "consisting of" claim. Applicant is of the position that the claims reciting "consisting essentially of" and "consisting of" are clear to one of ordinary skill in the art; the composition thus defined is determined in accordance with normal construction of the "consisting essentially of" and "consisting of" language, and the optional components either may or may not be present. Applicant accordingly respectfully requests reconsideration and withdrawal of this ground for rejection.

Applicant continues to traverse the rejections of the claims under §103 for the reasons set forth in the previous Amendment.

In response to Applicant's position as set forth in the previous Amendment to the effect that Siddiqui and Watt are directed to liquid inks while Malhotra et al. is directed to hot melt inks, the Examiner has newly cited Takazawa et al. Takazawa et al. discloses a printer ink composition containing a triphenylmethane dye or a lake pigment derived therefrom as a coloring agent, including as the coloring agent a triphenylmethane dye having general formula (I):



wherein R_1 , R_2 , R_3 , and R_4 are independently a hydrogen atom, an alkyl group, an aralkyl group, or an aryl group, R_5 is an aryl group, X^- is a counter ion, and ring A or ring B may be substituted by one or more

substituents, provided that at least one group among R₁, R₂, R₃, and R₄ is not methyl and in the case that R₅ is p-dimethylaminophenyl, at least one of R₁ and R₂ and at least one of R₃ and R₄ are not methyl; or a lake pigment derived therefrom, in order to prevent the formation of Michler's ketone. The ink composition is used for printing media for printer such as fabric ink ribbon, ink roll, ink-retaining element, thermal transfer ink ribbon, and pressure-sensitive transfer ink ribbon.

The Examiner has stated that, as disclosed in Takazawa et al., the ingredients for liquid inks and solid inks overlap, as disclosed at column 6, lines 43 to 52 and column 7, lines 65 to 68, and is accordingly of the position that there is ample motivation to combine Siddiqui and Watt with Malhotra et al. Applicant disagrees with this position. Takazawa et al. is primarily directed to a specific colorant, and discloses the use of this colorant in various types of materials, including liquid inks, thermal transfer ribbons, and pressure sensitive transfer ribbons. The reference clearly states at column 7, lines 56 and 57, that "[h]ereinafter, the solid ink composition of the present invention will be explained." (emphasis added) At column 7, lines 65 to 68, the reference states that "[w]ith respect to the solid ink for such uses, conventional vehicles and others can be used without any particular change except that the specified coloring agent as mentioned above is used as the coloring agent." Immediately thereafter, in column 8, lines 1 to 23, the reference states: "Hereinafter, a first explanation will be given for the one-time thermal transfer ink ribbon. The vehicle of solid ink for the ribbon is preferably a vehicle composed of a wax-like substance as a main component or a vehicle composed of a mixture of a wax-like substance

and a thermoplastic resin as a main component. Examples of the wax-like substance include natural waxes such as carnauba wax, whale wax, haze wax, bees wax, lanolin, montan wax and ceresine wax; petroleum waxes such as paraffin wax and microcrystalline wax; synthetic waxes such as low molecular weight polyethylene, oxidized wax and ester wax; higher fatty acids such as lauric acid, myristic acid, palmitic acid, stearic acid and behenic acid; higher aliphatic alcohols such as stearyl alcohol and behenyl alcohol; esters such as higher fatty acid monoglycerides, sucrose fatty acid esters and sorbitan fatty acid esters; and amides such as oleic amide. One or more kinds of these wax-like substances are appropriately used. Examples of the thermoplastic resin include ethylene-vinyl acetate copolymer, petroleum resin, polyvinyl acetate, polystyrene, styrene-butadiene copolymer and acrylic resin. One or more kinds of these resins are appropriately used." (emphasis added) Subsequent portions of the reference discuss inks for use in multi-use thermal transfer ribbons, one-time use pressure-sensitive ribbons, and multi-use pressure-sensitive ribbons. The statement at the bottom of column 7 to the effect that "conventional vehicles and others can be used without any particular change except that the specified coloring agent as mentioned above is used as the coloring agent" clearly refers to conventional vehicles commonly used in one-time use and multi-use thermal transfer and pressure-sensitive transfer ribbons, as discussed at the top of column 8 and subsequent portions of the reference, and does not refer to conventional vehicles commonly used in liquid inks, which were discussed previously in the reference. Liquid ink jet inks and solid ink jet inks have different characteristics, different requirements, and

different design difficulties; those of ordinary skill in the art would not be led to the conclusion that one specific component of one specific liquid ink should be taken and added to another specific solid ink, or that by so doing advantageous results would occur. Applicant accordingly maintains that there is no motivation for one of ordinary skill in the art to combine the teachings of Malhotra et al., which is directed to a hot melt ink, with the teachings of Siddiqui or Watt, which are directed to liquid inks.

In response to Applicant's position as set forth in the previous Amendment to the effect that Malhotra et al. is directed to an ink containing both a liquid aldehyde or acid and a solid aldehyde or acid in addition to the other disclosed ink components, whereas the materials recited in claim 10 are all solids at room temperature, the Examiner has stated that present claims 1, 21, and 22 require only a nonpolymeric aldehyde viscosity modifier, that there is no requirement in these claims that the viscosity modifier must be a solid aldehyde compound, and that it is clear that the claims are open to a viscosity modifier which is either a liquid aldehyde or a solid aldehyde. Applicant points out that this argument in the previous Amendment was made with respect to claim 10, and not claim 1. The Examiner has further stated that claims 21 and 22 recite "consisting essentially of" and "consisting of" language, respectively, and that the liquid aldehyde compound of Malhotra et al. can function either as part of the claimed ink vehicle or as the claimed viscosity modifier given that neither claim 21 nor claim 22 require the viscosity modifier to be a solid aldehyde. Applicant has

amended claims 21 and 22 to recite that the viscosity modifier has a melting point of no less than about 65°C.

In response to Applicant's position as set forth in the previous Amendment with respect to Malhotra et al., the Examiner has stated that while Malhotra et al. discloses benzaldehyde compounds as presently claimed but does not explicitly refer to these compounds as viscosity modifiers, given that the reference compounds are the same type as the compounds presently claimed, i.e., benzaldehydes, it would have been natural for one of ordinary skill in the art to infer that the reference compounds intrinsically function as viscosity modifiers, and thereby arrive at the claimed invention. Applicant points out, however, that nothing in this reference teaches that these materials should be added to an ink composition also containing an aldehyde copolymer ink vehicle. Those of ordinary skill in the art would not be led to the conclusion that one specific component of one specific ink should arbitrarily be taken and added to another specific ink, or that by so doing advantageous results would occur. There would be no motivation for one of ordinary skill in the art to add these materials to an ink containing an aldehyde copolymer ink vehicle.

In response to Applicant's position as set forth in the previous Amendment to the effect that Malhotra et al. does not disclose the time necessary for the ink to change from solid state to liquid state, the Examiner has stated that while it is agreed that the reference does not explicitly disclose the time required for the ink to change from the solid state to the liquid state, Malhotra et al. does disclose the melting point of the ink, that to the extent that the melting point represents the

change from solid to liquid, and given that the melting temperature and the ink ingredients disclosed by Malhotra et al. overlap those presently claimed, it is the Examiner's position that the ink of Malhotra et al. would intrinsically change from solid to liquid in the same time as presently claimed. Applicant disagrees with this position. As stated hereinabove and in the previous Amendment, Malhotra et al. fails to teach or suggest a hot melt or phase change ink of the composition recited in the instant claims. In addition, while melting point is measured in units of temperature, such as degrees, the time required for a material to undergo a change from the solid state to the liquid state is measured in units of time, such as milliseconds. Two materials with the same melting point can have substantially different melt times. Accordingly, since Malhotra et al. fails to teach either a composition as recited in the instant claims or a hot melt or phase change ink with a melt time as recited in claim 4, Applicant remains of the position that the present invention as recited in the instant claims is patentable with respect to the teachings of this reference, viewed either alone or in combination with other references.

In response to Applicant's position as set forth in the previous Amendment to the effect that Malhotra et al. viewed in combination with Tobias et al. would not lead one of ordinary skill in the art to the present invention, the Examiner has stated that given that Tobias et al. is drawn to hot melt inks as are Malhotra et al. and the present claims, and further given that Tobias et al. teaches that conductivity agents are used in hot melt inks to control the conductivity of the ink to a certain level to produce an ink which is suitable for use in

an ink jet printer, a function especially relevant to both Malhotra et al. and the invention at hand, it is the Examiner's position that there is ample motivation to combine Malhotra et al. with Tobias et al. Applicant disagrees with this position. As stated hereinabove and in the previous Amendment, Malhotra et al. does not teach or suggest a hot melt or phase change ink of the composition recited in the instant claims; Tobias et al. fails to remedy this deficiency in the teachings of Malhotra et al. In addition, Malhotra et al. teaches solid inks for use in acoustic ink jet printing, while Tobias et al. teaches hot melt inks for use in continuous ink jet printing. The conductivity of the ink is very important in continuous ink jet printing, but nothing in Malhotra et al. teaches or suggests that the conductivity of a solid ink for use in acoustic ink jet printing is of any importance. Accordingly, Applicant remains of the position that one of ordinary skill in the art would not be motivated to combine the teachings of Malhotra et al. with the teachings of Tobias et al., and that even if these teachings were so combined, one of ordinary skill in the art would not be led to arrive at the instantly claimed invention.

In response to Applicant's position as set forth in the previous Amendment to the effect that Nishizaki et al. discloses styrene and terpene polymers and not aldehyde copolymers as presently claimed, the Examiner has stated that while Nishizaki et al. do not disclose all of the features of the present claimed invention, Nishizaki et al. is used as a teaching reference that teaches a certain concept, namely that hot melt inks typically possess certain haze values, and in combination with the primary reference, discloses the presently claimed invention. Applicant disagrees with this position. The Examiner appears

to have cited Nishizaki et al. solely because it has certain physical characteristics that are similar to those of the instantly claimed inks. The possibility that one of ordinary skill in the art could look at Malhotra et al., Schwarz, Siddiqui, Watt, and Takazawa et al., derive therefrom a composition similar to that recited in instant claim 1, and then conclude that this ink would have physical characteristics similar to those of the Nishizaki et al. ink, which has a completely different composition, is so slight as to be insignificant. Further, as discussed hereinabove and in the previous Amendment, since none of these references, viewed alone or in combination, teach or suggest an ink composition as recited in instant claim 1, even if these references were viewed in combination, one of ordinary skill in the art would not be led to arrive at the present invention.

The Examiner has, in this Office Action, newly cited Schwarz et al. against claims 1 to 5, 8 to 13, and 17 to 22 in combination with Malhotra et al., Siddiqui, Watt, and Takazawa et al. The Examiner has stated that Schwarz et al., which is drawn to hot melt inks, discloses the use of 10 to 90 percent aldehyde copolymer, namely formaldehyde-toluene sulfonamide, which functions both as a binder to provide printed images with flexibility to prevent cracking and creasing, and as a propellant to enhance ejection of the ink from the ink jet printer.

Schwarz et al. discloses hot melt ink compositions suitable for ink jet printing which comprise a colorant, a binder, and a propellant selected from the group consisting of hydrazine; cyclic amines; ureas; carboxylic acids; sulfonic acids; aldehydes; ketones; hydrocarbons; esters; phenols; amides; imides; halocarbons; urethanes; ethers; sulfones; sulfamides; sulfonamides; phosphites; phosphonates;

phosphates; alkyl sulfides; alkyl acetates; and sulfur dioxide. Also disclosed are hot melt ink compositions suitable for ink jet printing which comprise a colorant, a propellant, and a binder selected from the group consisting of rosin esters; polyamides; dimer acid amides; fatty acid amides; epoxy resins; fluid paraffin waxes; fluid microcrystalline waxes; Fischer-Tropsch waxes; polyvinyl alcohol resins; polyols; cellulose esters; cellulose ethers; polyvinyl pyridine resins; fatty acids; fatty acid esters; poly sulfonamides; benzoate esters; long chain alcohols; phthalate plasticizers; citrate plasticizers; maleate plasticizers; sulfones; polyvinyl pyrrolidinone copolymers; polyvinyl pyrrolidone/polyvinyl acetate copolymers; novalac resins; natural product waxes; mixtures of linear primary alcohols and linear long chain amides; and mixtures of linear primary alcohols and fatty acid amides. In one embodiment, the binder comprises a liquid crystalline material. Nothing in this reference, however, teaches or suggests that an aldehyde copolymer should be combined with a nonpolymeric aldehyde viscosity modifier and a colorant to make a hot melt ink. Accordingly, Applicant is of the position that the present invention is patentable with respect to this reference viewed in combination with Malhotra et al., Siddiqui, Watt, and Takazawa et al.

In the rejections of the claims under §103, the Examiner appears to have considered various portions of the references cited, in each instance viewing the cited portion in isolation from the context of the entire reference, and combined these isolated portions to arrive at the present invention with the benefit of hindsight. Using hindsight or applying the benefit of the teachings of the present application when

determining obviousness, however, is impermissible; the references applied must be reviewed without hindsight, must be reviewed as a whole, and must suggest the desirability of combining the references. Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 221 U.S.P.Q. 481 (Fed. Cir. 1984). None of the cited references suggests or teaches the desirability of combining the elements of the present invention as claimed. Obviousness cannot be established by combining references to arrive at the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In re Geiger, 2 U.S.P.Q. 2d 1276 (Fed. Cir. 1987); Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 231 U.S.P.Q. 644 (Fed. Cir. 1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. (BNA) 929 (Fed. Cir. 1984). When determining patentability under §103, the Examiner must consider the invention as a whole, and cannot view each element of the claim separately with respect to the prior art. See, e.g., Jones v. Hardy, ___ F.2d ___, 220 U.S.P.Q. 1021 (BNA) (Fed. Cir. 1984). When prior art references require selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Uniroyal Inc. v. Rudkin Wiley Corp., ___ F. 2d ___, 5 U.S.P.Q. 2d 1435 (Fed. Cir. 1988); Interconnect Planning Corp. v. Feil, 774 F. 2d 1132, 227 U.S.P.Q. 543 (Fed. Cir. 1985). It is impermissible to use the claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention. Uniroyal Inc. v. Rudkin Wiley Corp., ___ F. 2d ___, 5 U.S.P.Q. 2d 1435 (Fed. Cir. 1988); W. L. Gore and Associates, Inc. v. Garlock, Inc., 721 F. 2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

Applicant directs the Examiner's attention to Ex Parte Levengood, 28 USPQ 2d 1300 (Bd. Pat. App. & Int. 1993), in which the Board reversed the rejection of all claims "because the examiner has used the wrong standard of obviousness.":

"Obviousness is a legal conclusion, the determination of which is a question of patent law. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963). In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present evidence¹, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art would have been led to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. See, for example, Carella v. Starlight Archery, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985).

...

"...the examiner may provide an explanation based on logic and sound scientific reasoning that will support a holding of obviousness. In re Soli, 317 F.2d 941, 137 USPQ 797 (CCPA 1963)²...

...

"In this case, however, the only suggestion for the examiner's combination of the isolated teachings of the applied references improperly stems from appellant's disclosure and not from the applied prior art. In re Ehrreich, 590 F.2d 902, 200 USPQ 504 (CCPA 1979). At best, the examiner's comments regarding obviousness amount to an assertion that one of ordinary skill in the relevant art would have been able to arrive at appellant's invention because he had the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness. See Orthokinetics Inc. v. Safety Travel Chairs Inc., 806 F.2d 1565, 1 USPQ 2d 1081 (Fed. Cir. 1986). That which is within the capabilities of one skilled in the art is not synonymous with obviousness. Ex Parte Gerlach, 212 USPQ 471 (Bd. App. 1980). ... That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make the claimed invention.

"Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior

art, or knowledge generally available to one of ordinary skill in the art, that 'would lead' that individual 'to combine the relevant teachings of the references.' In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). In re Newell, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done."

1. The importance of evidence in the examination process is set forth in the following quotation from In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984): "The Supreme Court in Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. 459 (1966), focused on the procedural and evidentiary processes in reaching a conclusion under section 103. As adapted to ex parte procedure, Graham is interpreted as continuing to place the 'burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103'. In re Warner, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967). After a *prima facie* case of obviousness has been established, the burden of going forward shifts to the applicant.

2. Preferably the examiner's explanation should be such that it provides that impetus necessary to cause one skilled in the art to combine the teachings of the references to make the proposed modification. In re Albrecht, 514 F.2d 1385, 185 USPQ 585 (CCPA 1975).

As the Court of Appeals for the Federal Circuit recently stated in Yamanouchi Pharmaceutical Co. v. Danbury Pharmacal Inc., 56 USPQ2d, 1641 (Fed. Cir. 2000) at 1644:

This court has recently reemphasized the importance of the motivation to combine:

As this court has stated, "virtually all [inventions] are combinations of old elements." Therefore, an examiner [or accused infringer] may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner [or accused infringer] to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention.

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...To counter this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

In re Rouffet, 149 F.3d 1350, 1357-58, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998) (internal citations omitted).

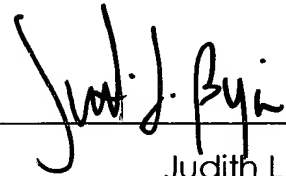
For the instant application, the Examiner also appears to have attempted to use the claimed invention as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. This method is clearly impermissible. Nothing in any of the cited references teaches or suggests the combination of elements recited in the instant claims.

Applicant believes that the foregoing amendments and distinctions place the claims in condition for allowance, and accordingly respectfully requests reconsideration and withdrawal of all grounds for rejection.

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In the event the Examiner considers personal contact advantageous to the disposition of this case, she is hereby requested to call Applicant(s) attorney, Judith L. Byorick, at Telephone Number (716) 423-4564, Rochester, New York.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Judith L. Byorick", is written over a horizontal line.

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